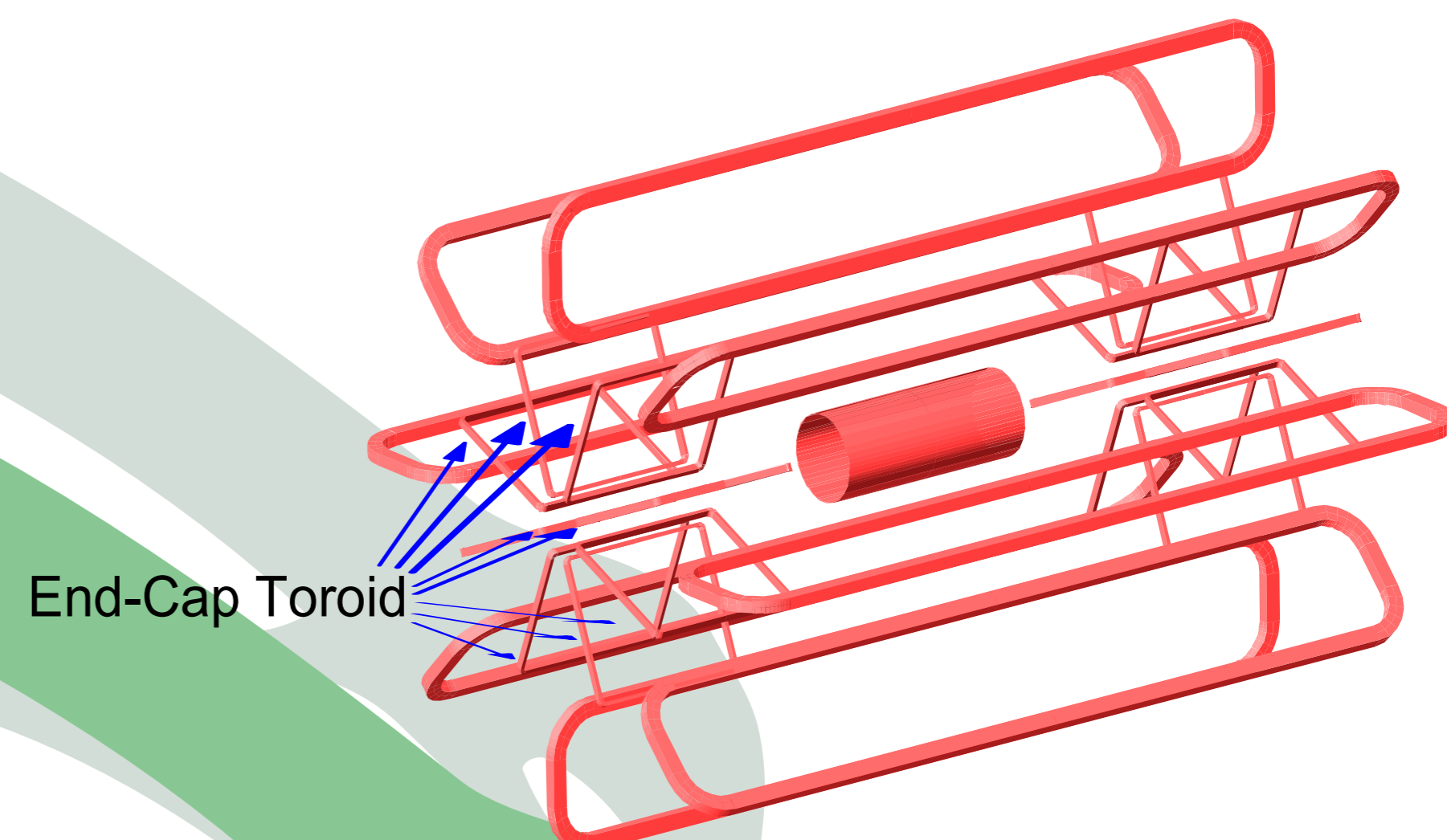


OPTIMAL MOMENTUM MEASUREMENT

Two End-Cap Toroids provide the magnetic field in the forward region muon spectrometers. Rotated by 22.5° with respect to the Barrel Toroid they are designed for a radial overlap in order to optimise the magnetic bending power in the interface regions.



End-Cap Toroid

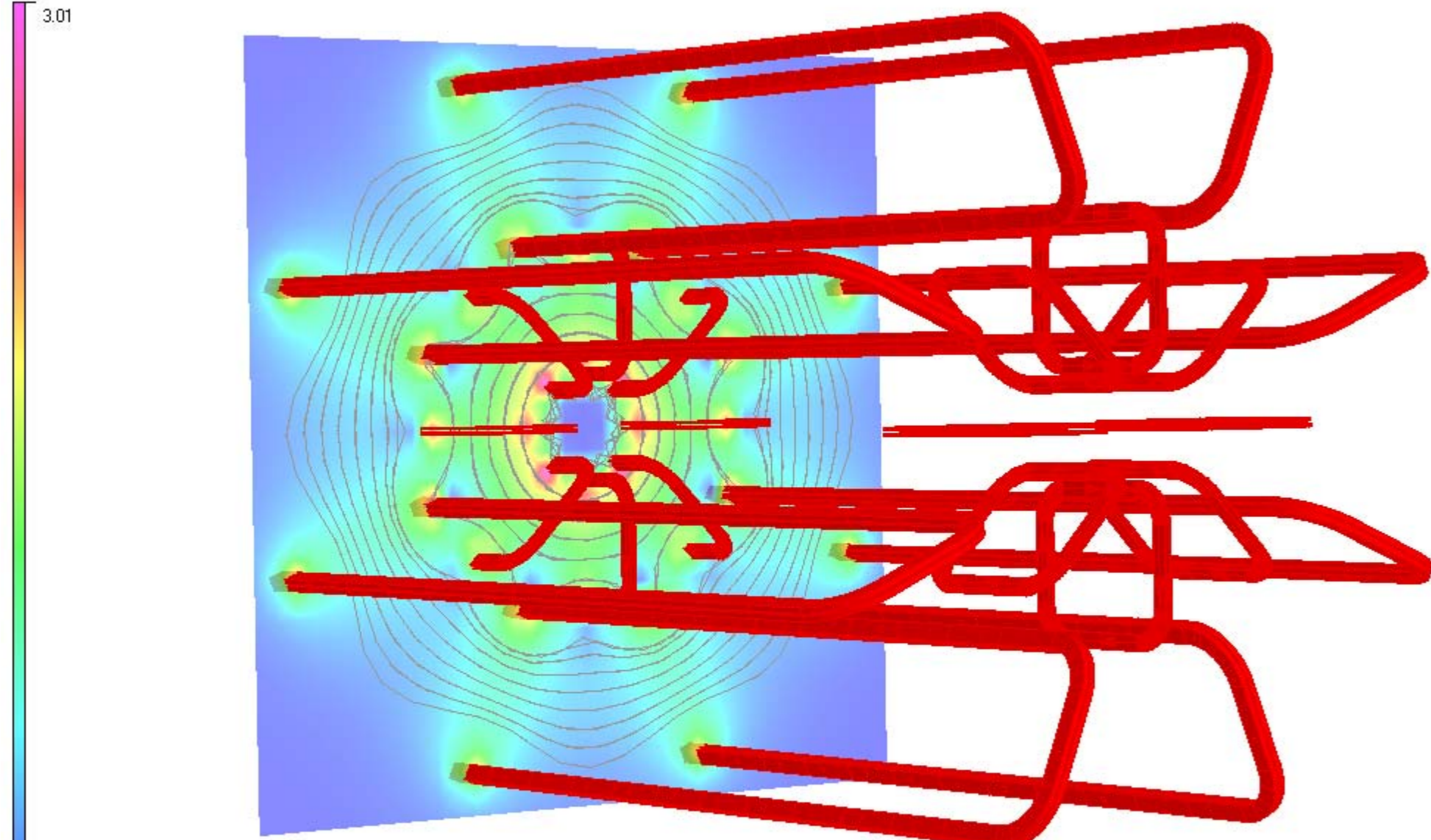
SINGLE COLD MASS

The eight coils of an End-Cap Toroid are assembled as a single cold mass inside one large cryostat. Eight keystone boxes are used to maintain the toroidal shape under the gravitational and magnetic loads. The cold mass is indirectly cooled by pumped circulation of two-phase helium.



COIL WINDING

Map contour: BMOD

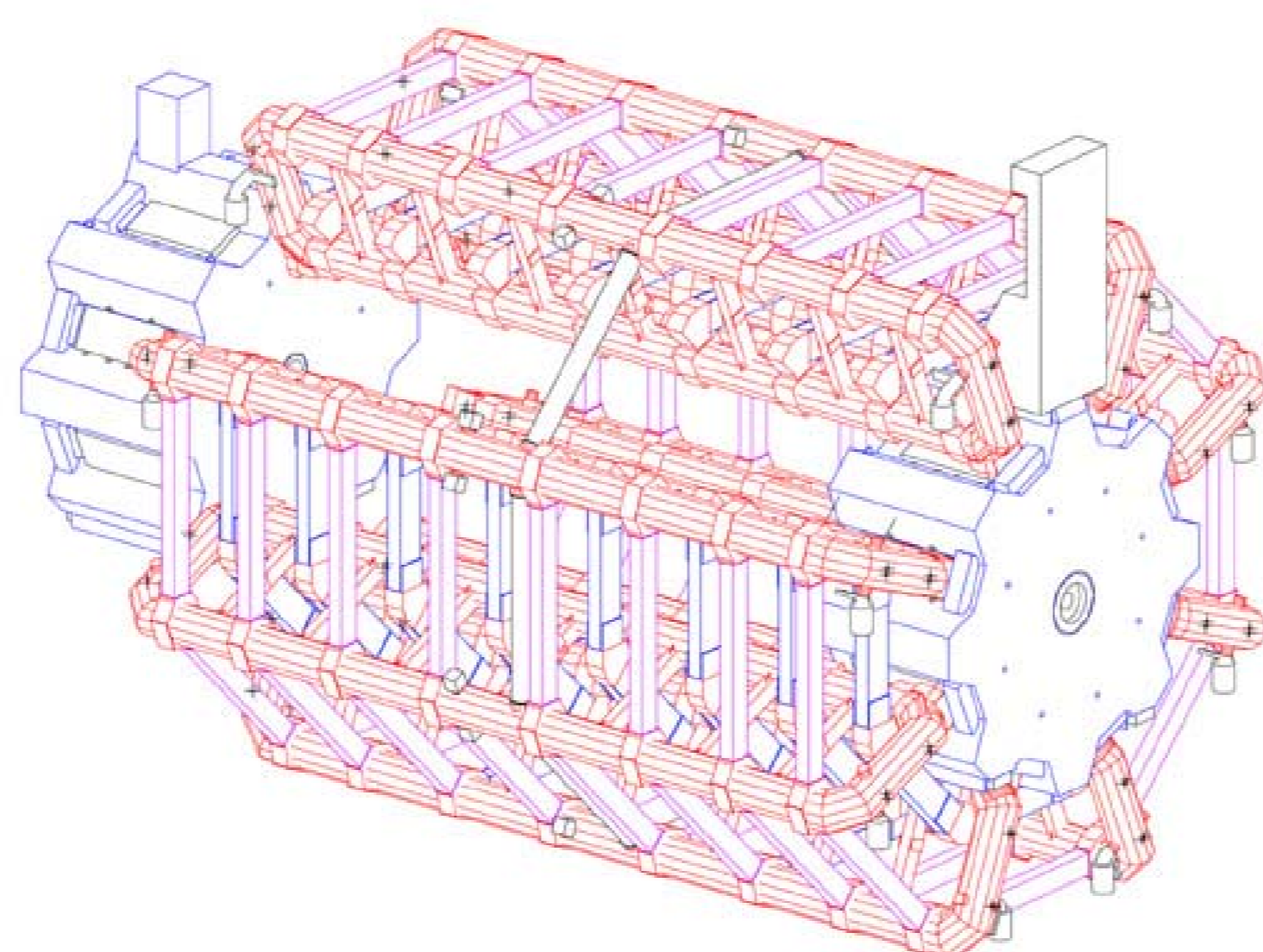


TOROIDAL MAGNETIC FIELD



MOVEABLE STRUCTURE

The castellated shape of the cryostat vacuum vessel makes it possible to insert the End-Cap Toroids in the Barrel Toroid. Each End-Cap Toroid is mounted on a rails structure to allow access to the centre of the detector. All connections are made through a service turret on top of the cryostat.



Main Parameters (per module):

Peak magnetic field:	4.1 T
Operating current:	20,500 A
Operating temperature:	4.8 K (-268 °C)
Axial length:	5 m
Inner diameter:	1.7 m
Outer diameter:	11 m
Stored energy:	250 MJ
Weight:	240 tonnes
Conductor length:	13 km